

buffering is compensated by a difference of the bit value of the predetermined number of stages and the signal input from the step of scale count.

20. The Fast Fourier Transforming method of Claim 19, wherein the step of compensation comprises:

a step of a second operation for dividing the bit value of the butterfly operated output signal at the final stage of the predetermined number of stages

5 by the scale factor calculated at the final stage;

a step of division and multiplication selection for calculating a difference value of the predetermined number of stages and the scale count value, comparing the predetermined number of stages with the scale count value and outputting a selection data for division operation if the  
10 predetermined number of stages is greater, while outputting a selection data for multiplication if the scale count value is greater;

a step of factor calculation for calculating and outputting a quotient **Q** and a remainder **R** by dividing the difference value by 2;

a step of division and multiplication calculation for dividing the value  
15 resulting from the step of second operation by  $2^Q$  if the selection data is for the division operation, while multiplying the value resulted from the step of second operation by  $2^Q$  if the selection data is for the multiplication operation;

a step of bit compensation for compensating for the bit value resulting from the step of division and multiplication calculation according to the  
20 selection data and the remainder **R**; and

a step of adding for adding the bit data compensated at the step of bit compensation and outputting the result.

21. The Fast Fourier Transforming method of Claim 20, wherein at the step of bit compensation, the data resulting from the step of division and multiplication calculation is output intact, if the remainder **R** is not 1.

22. The Fast Fourier Transforming method of Claim 20, wherein at the step of bit compensation, the data resulting from the step of division and multiplication calculation is multiplied by  $1/2$ ,  $1/8$ ,  $1/16$ ,  $1/64$ , respectively, if the remainder **R** is 1 and the selection data is for the division operation,  
5 thereby passing each of the result values to the step of adding.

23. Fast Fourier Transforming method of Claim 20, wherein at the step of bit compensation, the data resulting from the step of division and multiplication calculation is multiplied by  $1/2$ ,  $1/4$ ,  $1/8$ ,  $1/32$ , respectively, if the remainder **R** is 1 and the selection data is for the multiplication operation,  
5 thereby passing each of the result values to the step of adding.

24. The fast Fourier transforming method of Claim 20, wherein at the step of adding, each of the 4 result values from the step of bit compensation is added, thereby compensating for the bit of the input signal.